Co-Designing the Hayden Smart Library

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Citizen-Centered Smart Libraries

Abstract

Throughout the Fall 2019 semester, students in the Smart City INfrastructure and Technology course engaged real staekholders on Arizona State University's Tempe campus to develop strategies for incorporating smart technologies to better serve patrons of the Gayden and Noble libraries. Smart technologies, such as automatic doors, self-serve kiosks, digital storage, and responsive lighting allow libraries to extend their hours, accomodate many diverse patrons and optimize their space and resources. The goal of this research was to collect stakeholder perspectives in order to propose a design for a smart library that is in the public interest.

Methodology

This project utilized participatory methods by actively engaging a variety of stakeholders, including patrons, librarians, UTO personnel, administrative staff, and more. Participatory design is an approach to research in which the stakeholders are engaged in stages of the design process. By employing a participatory, or cvo-design approach, this project aims to reduce risk and build community ownership over the design. Engaging the community enables realistic expectations, boosts stakeholder confidence, and fosters community involvement. It allows innovation through exposing designers to a breadth of perspectives. Stakeholders were engaged through more than 60 semi-structured interviews that were later transcribed in order to detect overlapping ideas and concerns for the new Hayden Library.

The interviews are used to identify stakeholder pain points with the current state of the library. To achieve success students aligned pain analysis with industry standards, creating Pain Chain Charts and developing value propositions to address the most common stakeholder concerns. This semester students performed initial research into problems already being addressed by the Hayden Library Update. To obtain the most value on the proposition, the class chose to focus on pains that are not on the roadmap to be addressed. The pain chain chart and value proposition provide a foundation to pinpoint where smart solutions can be applied.

Pain Chain Chart: The Below Pain Chain chart draws out the similar pain points between different stakeholders and highlights common themes.

Title	Staff
Pain:	Funding
R1:	Library is a service and is not revenue generating
R2:	Research Labs and other groups need more visibility to acquire funding sources

Title	Staff
Pain:	Sociotechnical
R1:	Libraries are traditionally a place where personal information is not collected, but in the big data realm data → collecting
R2:	Public is not interested in being active stakeholders and contributing to addressing the social-technological issues

Title	Staff
Pain:	Difficulty Sharing Information with Patrons
R1:	Patrons need to rely on Q&A from staff
R2:	Navigation both physically and virtually is difficult
R3	Large number of visitors

Title	Students at Library
Pain:	Temperature
R1:	Temperature is often too cold and not adjustable

Title	Students at Library
Pain:	Unaware of Resources
R1:	Students are not sure of how to navigate or find resources that the library offers

Title	Students at Library
Pain:	Slow Internet and Slow Computers
R1:	Students need computers and internet for class and homework.

Title	Students NOT at Library
Pain:	Unaware of Resources
R1:	Communication of the resources at the library are limited and do not reach most students

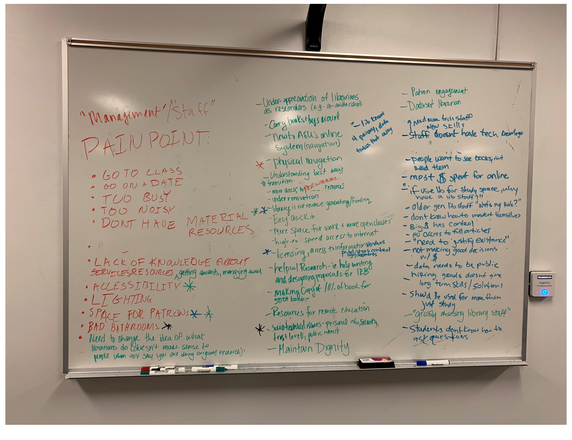
Title	Students NOT at Library
Pain:	Lack of a collaborative environment
R1:	Need someplace to work with friends and classmates on group projects

Title	Students NOT at Library
Pain:	Computer Use & Speed
R1:	Availability of computers and speed are important for homework and classes.

The Pain Chain Chart demonstrates staff and students alike identify communication of the Library Resources as a pain-point. The library offers students with a multitude of opportunities and resources, but if staff and students cannot access resources the value is lost.

Value Proposition: Patrons of the library should be able to understand library resources (both physical and digital), by the end of the Smart City Infrastructure and Technology course offering, through the ability to share information via a smart digital hub.

The Pain Chain Chart denotes a common issue among both staff and patrons of the library- resource knowledge. A smart tech solution can be easily implemented to help provide students and staff with an information portal.



Proposed Solutions

Chat Bot on MyASU Mobile Application- A software solution that will interact with users via conversation. The chat bot can provide Q&A support to patrons and staff. The Chat bot will be able to be used from the web and at any location, not just library specific.

Information Kiosk- A standing portal that patrons can interact with to find out about events and resources at the library. This could be spread out throughout campus, located at the library entrance, and accessible through an online portal.

Amazon Alexa's- Utilize Amazon Alexas to engage with patrons throughout the Library to help with resources.

Bulltin Board at Libarary Entrance

Online Website

Future work

Over the next three years, upcoming cohorts of NSF NRT students will be required to take the Smart City Infrastructure and Technology course and continue this project. Future students will begin to implement one or more of the proposed technological solutions for the new Hayden Library, while continuing to engage stakeholders during the process to allow for the codesign collaboration to continue. These students will continue to engage with the management team of the library to ensure they are not working on a solution that has already been proposed and that the solutions complement the design of the new library

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